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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,590

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Yasuhiko Abe

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EXAMINER

DINH, JACK

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/748,590

Applicant(s)

ABE, YASUHIKO

Examiner

Jack Dinh

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/12/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7,8,10,11,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 3,6,9,12 and 15-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: DETAILED ACTION.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 4, 5, 7, 8, 10, 11, 13 and 14 are rejected under 35 U.S.C. 102(e) as being unpatentable by Sato et al. (US Patent 6,728,047).

Regarding claim 1, Sato (figure 1) is interpreted as disclosing a photographing lens comprising a total lens system comprising, in sequence from the object side to the image plane side: an aperture stop **A** with a predetermined aperture, a first lens group with an overall positive refractive power, a second lens group with an overall positive refractive power, and a third lens group with an overall positive refractive power, wherein the first lens group is a cemented lens formed by bonding, in sequence from the object side to the image plane side, a first lens **L1** with a positive refractive power and a second lens **L2** with a negative refractive power, the second

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lens group is a third lens **L3** with a positive refractive power and an aspherical surface on at least one of an object-side surface and an image plane side surface and the third lens group is a fourth lens **L4** with a positive refractive power and an aspherical surface on at least one of an object-side surface and an image plane side surface (col. 3, lines 1-15).

Regarding claims 4 and 10, Sato (figure 1) is interpreted as further disclosing that the third lens is a meniscus lens with a convex surface oriented toward the image plane side (col. 3, lines 1-15).

Regarding claims 5 and 11, Sato (figure 1) is interpreted as further disclosing that the fourth lens is a meniscus lens with a convex surface oriented toward the object side (col. 3, lines 1-15).

Regarding claims 7 and 13, Sato is interpreted as further disclosing that the fourth lens is a meniscus lens (col. 3, lines 1-15), which by the concave-convex feature, comprises an inflection point.

Regarding claims 8 and 14, Sato is interpreted as further disclosing that the third lens and the fourth lens are formed from a resin material (col. 9, lines 62-63).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US Patent 6,728,047).

Regarding claim 2, Sato is interpreted as disclosing all the claimed limitations, as described above, except that $f/FL > 0.6$, wherein f is a focal length of the total lens system and FL is a distance from an object-side surface of the aperture stop to the image plane on which an object is imaged. In other words, this simply means that the focal length of the total lens system should be at least 60% of the distance from an object-side surface of the aperture stop to the image plane on which an object is imaged. Although the prior art does not disclose this specificity, such ranges would be easily discovered by, or readily available to one skill in the art through routine experimentation. It is considered not inventive to discover optimum ranges through experimentation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide this range, for the purpose providing a preferred ratio for the focal length of the total lens system and the distance from an object-side surface of the aperture stop to the image plane on which an object is imaged.

Allowable Subject Matter

4. Claims 3, 6, 9, 12 and 15-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter. The present invention relates to a photographing lens used with cameras in mobile devices.

Regarding claims 3 and 9, the prior art fails to disclose that the lens system satisfies the two conditions: (1) $10 < v_1 - v_2 < 25$, and (2) $N_1 < 1.6$, where v_1 is an Abbe number of the first lens, v_2 is an Abbe number of the second lens, and N_1 is a refractive index of the first lens.

Regarding claims 6 and 12, the prior art fails to disclose that the lens system satisfies the two conditions: (1) $1 < R_6/R_7 < 2$, and (2) $1 < R_9/R_8 < 2$, where R_6 is a radius of curvature of the object-side surface of the third lens, R_7 is a radius of curvature of the image plane side surface of the third lens, R_8 is a radius of curvature of the object-side surface of the fourth lens, and R_9 is a radius of curvature of the image plane side surface of the fourth lens.

5. The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 USC 102 or 103 would be improper. The claimed invention is therefore considered to be in condition for allowance as being novel and non-obvious over prior art.

Other Information/Remarks

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800